

IN THE SPECIFICATION

1. Please amend the title of the invention as follows:

**METHOD AND APPARATUS ~~FOR ALARMING~~ TO GENERATE AN
ALARM ON OCCURRENCE OF CELL SECESSION OF A MOBILE
STATION IN A MOBILE COMMUNICATION SYSTEM**

2. Please amend the subtitle at line 4 on page 1 as follows:

CLAIM OF PRIORITY

3. Please amend the second paragraph on page 1, from line 11 through line 14,
as follows:

AI
The present invention relates generally to a radio mobile communication system, and
in particular, to a method ~~for generating, when a subscriber secedes from a base station~~
~~transceiver subsystem (BTS), and apparatus adapted to generate an alarm signal for informing~~
~~a subscriber's terminal or~~ when a mobile station secedes from a selected cell of a mobile
communication system, the alarm informing a user of the mobile station of the secession.

4. Please amend the two consecutive paragraphs on page 2, from line 2 through
line 12, as follows:

A2 In a code division multiple access (CDMA) mobile communication system, a mobile station measures the strength of a signal transmitted from a transceiver subsystem (BTS) and displays a received signal strength indication (RSSI) on a liquid crystal display (LCD) to enable the terminal user to observe the receiving sensitivity on the user's location. Further, the mobile station controls transmission power in inverse proportion to a level of the measured RSSI.

For example, the mobile station can display the level of the RSSI on the LCD using vertical rods, so that the subscriber can be visibly aware of the level of the RSSI at the sight of the rod indication. However, during a call, the user may have [[a]] difficulty in checking the rod indication representative of the level of the RSSI, so that the user may not be able address a situation where the level of the RSSI is lowered which can cause a decrease in the call sensitivity or a call drop, the call drop typically being undesirable to the user.

-
5. Please amend three consecutive paragraphs bridging pages 6 and 7, from line 5 on page 6 through line 4 on page 7, as follows:
-

A3 It is, therefore, an object of the present invention to provide a method ~~for alarming on occurrence of~~ and apparatus of a mobile communication system adapted to generate an alarm on the occurrence of a cell secession when a ~~subscriber's~~ mobile terminal secedes from a cell presently in service, by using the power control or handoff function to ~~call to~~ inform the

~~subscriber's attention~~ user of the mobile terminal of the occurrence of the cell secession, in
~~a mobile communication system.~~

A3 To achieve the above and other objects of the present invention, there is provided a method ~~for alarming~~ and apparatus adapted to generate an alarm on the occurrence of a cell
secession of a mobile station in of a mobile communication system. In the method, a A base
station transceiver subsystem (BTS) receives power-related information transmitted from
each mobile station, the power-related information related to a received power level of the
base station at each mobile station and being generated and transmitted from the mobile
station to the base station, and analyzes the power-related information to determine whether
each mobile station has seceded from a corresponding cell. The BTS transmits cell secession
alarm information to a cell-seceded mobile station ~~to enable~~ and the cell-seceded mobile
station is adapted to perform generate a cell secession alarm operation in response thereto.

Preferably, to detect the occurrence of a cell secession of the mobile station, the BTS
determines whether a power level of the mobile station is less than or equal to a
predetermined reference power level. Also, preferably, the BTS transmits a predetermined
tone control message as the cell secession information ~~when secession occurs~~ over a forward
traffic channel in of the mobile communication system.

6. Please amend the last three paragraphs on page 7, from line 10 through line 16, as follows:

FIG. 1 is a diagram ~~illustrating~~ of a network structure for explaining the concept of a private mobile communication service to which the present invention is applicable;

A4
FIG. 2 is a ~~flow chart illustrating~~ flowchart of a procedure for ~~alarms~~ generating an alarm on the occurrence of cell secession of a mobile station in a mobile communication system according to an embodiment of the present invention; and

FIG. 3 is a diagram ~~illustrating~~ of exemplary types of messages on a forward traffic channel in the mobile communication system to which the present invention is applied.

7. Please amend the subtitle at line 1 on page 8 as follows:

A5
DETAILED DESCRIPTION ~~OF THE PREFERRED EMBODIMENTS~~

8. Please amend the paragraphs bridging pages 8 and 9, from line 2 on page 8 through line 3 on page 9, as follows:

A6
~~Preferred embodiments~~ Embodiments of the present invention will be described herein below with reference to ~~the accompanying drawings of~~ FIGS. 1 through 3.

AG The present invention is preferably applied to a private radio switching system. In general, a mobile communication system performs cell mapping so as to cover the entire region of a nation, for example. Therefore, when a mobile station located in a specific cell moves out of, or secedes from, the specific cell, a handoff occurs to a target cell to which the mobile station is moving. However, the private radio switching system is generally structured such that a call is dropped when a private mobile station moves out of the cell coverage. Therefore, it is preferable to apply the methods and apparatus of the present invention for ~~alarms~~ generating an alarm upon the occurrence of a cell secession of the mobile station in the private radio switching system.

FIG. 1 ~~illustrates~~ is a diagram of a network structure for explaining the concept of a private mobile communication system to which the present invention is applicable. Referring now to FIG. 1, ~~FIG. 1 illustrates a public/private common radio communication system 1:~~ Referring to FIG. 1, ~~the public/private radio communication system 1~~ includes a public/private common cell 14, which is a public/private common communication service area, and a public/private communication service unit 12. Preferably, the public/private common cell 14 is set so as to provide a communication service to a specific group as a private mobile communication system 1A. For example, when a certain company or organization uses, or occupies, one building, the area belonging to the building can be defined as the public/private common cell 14.

9. Please amend the paragraphs bridging pages 11-13, from line 16 on page 11 through line 4 on page 13, as follows:

A7 In the above described system, such as illustrated in FIG. 1, radio communication service typically will be provided free of charge between the mobile stations MS 24, 24a to 24n in the public/private common cell 14 of the pBTS 8_k which is the BTS registered in the public/private communication service unit 12, i.e., the mobile stations registered in the private radio network. Therefore, during a call between the mobile stations registered in the private network within the public/private common cell 14, if a corresponding mobile station secedes from the public/private common cell 14, the call will be dropped or the mobile station will use another BTS so that the subscriber typically would be charged for the call. In this case, it is preferable to apply the methods and apparatus for alarming generating an alarm upon the occurrence of a cell secession of the mobile station according to the present invention.

Continuing with reference to FIG. 2, a detailed description will be made of an operation according to ~~the methods and apparatus~~ an embodiment of the present invention. FIG. 2 illustrates a procedure for alarming generating an alarm upon the occurrence of a cell secession of a mobile station in a mobile communication system according to an embodiment of the present invention. A CDMA system performs very accurate power control so that a

signal from a mobile station should be received at a BTS at the least signal-to-noise ratio (SNR), in order to maximize the capacity. The present invention desirably utilizes this power control function.

A7 Each mobile station transmits a radio frequency (RF) signal for a new channel assignment request, and the RF signal includes data indicating a power level detected by the mobile station. Each mobile station periodically samples the power level transmitted from a corresponding BTS and then transmits the sampled power level back to the BTS. The BTS then receives the sampled power level transmitted from each mobile station and analyzes a variation of the power level of the corresponding mobile station. Such an operation is performed for the power control and handoff of each mobile station. An operation according to ~~the methods and apparatus~~ an embodiment of the present invention is performed by analyzing the information about the power level provided from the mobile station

10. Please amend the complete paragraph on page 15, from line 4 through line 14, as follows:
-

A7 Referring now to FIG. 3, FIG. 3 illustrates exemplary types of messages on the forward traffic channel in the mobile communication system over which the cell secession alarm information is transmitted, such as in the case where ~~the method and apparatus~~ an embodiment of the present invention [[are]] is applied to an IS-95 mobile communication

AS system, for example, IS-95 being a CDMA "Mobile Station-Base Station Compatibility Standard for Dual Mode Wideband Spread Spectrum Cellular System". FIG. 3 illustrates various message names together with a corresponding message type and a corresponding meaning of a message (MSG) for a corresponding message in tabular form as can be implemented in the mobile communication system of FIG. 1, for example. In an embodiment of the present invention, for example, the alarm information is transmitted by setting a proper parameter to the "flash-with-information message" or the "alert-with-information message" on the forward traffic channel in the mobile communication system, as shown in FIG. 3.

-
11. Please amend the complete paragraph on page 16, from line 7 through line 14, as follows:
-

A9 As described above, a radio mobile communication system of an embodiment of the present invention generates an alarm signal to the mobile station when the subscriber's terminal, or mobile station, secedes from the designated cell during a call. In this manner, it is possible to generate an alarm upon the occurrence of or expected occurrence of a cell secession before the call is dropped, when the subscriber is moving out of the service area (i.e., a specific BTS or a specific cell), thereby preventing an abrupt call drop. Such a function is typically more effective when applied to an in-building communication service system rather than to a general CDMA system, although the present invention can be applied

AP. to a general CDMA system.

12. Please amend the two paragraphs bridging pages 18-19, from line 6 on page 17 through line 4 on page 18, as follows:

A10 While the method and apparatus of the present invention has been shown and described with reference to ~~a certain preferred embodiments~~ an exemplary embodiment, the methods and apparatus of the present invention should not be construed in a limiting sense. For example, although the present invention has been described with reference to an in-building private BTS, the methods and apparatus of the present invention can also be applied to a general CDMA system. That is, if the power level becomes too low to maintain the call and there is no neighbor BTS or no available channel, even though there is a neighbor BTS, the mobile communication system generates an alarm signal for the subscriber so that the subscriber may prepare for the call drop.

While there have been illustrated and described what are considered to be ~~preferred~~ an exemplary embodiments of the present invention, it will be understood by those skilled in the art that various changes and modifications may be made, and equivalents may be substituted for elements thereof without departing from the true scope of the present invention. In addition, many modifications may be made to adapt a particular situation to the teaching of the present invention without departing from the scope thereof. Therefore,

it is intended that the present invention not be limited to the particular embodiments disclosed as the best mode contemplated for carrying out the present invention, but that the present invention includes all embodiments falling within the scope of the appended claims.
